STB News

April 2004

Don Rej, former head of the Spallation Neutron Source, will become leader of STB May 1.

Allen Hartford Accepts New Outreach Post, Don Rej Will Lead STB

Science and Technology Base Programs (STB) will have a new leader May 1.

William H. Press, Laboratory deputy director for science and technology, announced in an STB all-hands meeting April 14 that Allen Hartford, director of STB for the last five years, will become a Laboratory "ambassador" to major universities in the Four Corners area and to Rice University in Texas on May 1.

Don Rej, an experimental physicist who headed the Spallation Neutron Source (SNS) for several years, will become acting leader of STB.

Press said he felt that both of these announcements "are very positive and will move the Lab forward in a very critical year." He noted specifically that the Laboratory is hoping that the contract to manage the Laboratory will be retained by the University of California, and, he said, "STB plays a very central role."

Press said Laboratory Director G. Peter Nanos feels that outreach to universities in the area is vital, and, Press said, "I can't do it alone." As a result, he asked Hartford to assist him, and Hartford said yes.

In describing Rej's background, Press said he served as the deputy division leader in the Physics Division, and then moved on to lead SNS. The Laboratory's portion of the SNS project was funded at $200 million. Los Alamos developed the front portion of an accelerator that will operate at Oak Ridge National Laboratory. SNS as a whole will cost about $2 billion. It will be one of the largest construction projects in science history.

Press noted that at SNS, Rej faced a real challenge because the 120-person division was created to exist only until the Los Alamos portion of the project was completed. Press said Rej found ways to place all of his employees as the project closed out. Press emphasized that he was not implying that anything similar would be happening at STB, but, he said, Rej proved at SNS that he could handle people issues in a "superb way."

(Please see CHANGES, page 2.)

Allen Hartford breaks out laughing while opening gag gifts at his STB going-away party.

CHANGES (Cont'd from p.1)

After the announcement, Hartford spoke briefly. He said it has been "an honor and a real privilege" to lead STB. It is a "terrific organization," he said, and he is "proud of what it has accomplished for the Laboratory."

Hartford said that he will miss the "day-to-day interactions with everyone" at STB, but he will still be working with some of the people here because of the nature of his new responsibilities. "I'll be talking to a lot of you," he said.

He concluded, "I want to thank you personally for all the help you've given me." He said he hopes STB employees will give the same support and assistance to Rej.

Rej said, "I can't wait to get here." He said he knows what STB does for the Laboratory, and he added, "LDRD was the best part of my career as a bench scientist."

Press said, "This won't affect anybody's job," but, he added, "I can't say there won't be any changes."

One more change became apparent during the question-and-answer session after the announcement. Jim Porter, leader of STB-University of California Coordination (STB-UC), confirmed that he will be leaving STB soon to take a position in the Applied Physics (X) Division. Press said STB-UC will be renamed "STB-University Relations." One of the first items on Rej's list will be selection of a successor to Porter.

SearchPlus Represents Major Effort by Many Library Staff Members

The Research Library (RL) started working on "SearchPlus" in late 2000. At first, only one man was assigned to the project, but it soon became apparent that the project was mushrooming.

Now, Miriam Blake said in a recent interview, "SearchPlus is our flagship application. It is the most heavily used project RL has."

Blake, leader of the RL Development Team, traced the history of SearchPlus, spoke of the tremendous effort that many RL employees have poured into the program, and shared some interesting details about what goes into such a project.

The Research Library receives data from many vendors, and the data arrives in many formats. RL converts each item that arrives to XML format so that it can "store it in a way that's consistent and create a single interface for users to get to it," Blake said. The RL staff also enhances the data by eliminating duplication. "That's something we spent—and spend—a lot of time on," she commented.

The immediate goal of SearchPlus is informational one-stop shopping—even for the least sophisticated user—"almost to the point of Google," she said. "The big-picture goal," she said, "is to help scientists collaborate and do e-science … to get information quickly and be able to share it quickly."

With those ideals in mind, the library began SearchPlus in 2003 with "ISI," an Institute of Scientific Information database used by many scientists looking for highly cited papers. ISI includes "Sci Search," the library's most highly used database for many years. It also includes "Social Science Search" and "ISI Conference Proceedings."

In March 2004, the library added the "Inspec" database, which serves an engineering and computer science audience.

The library anticipates adding "Biosis," which serves people in biology and medicine, in June.

The next step—perhaps by September 2004—will be "Engineering Index."

Two other databases to which RL currently provides access via other interfaces—"DOE Energy" and "NSA-Nuclear Security Abstracts"—could come later, but Blake said that the staff is also looking at alternatives such as adding new databases not currently held by the RL.

The library is also considering incorporating full-text journals into SearchPlus. ("Science Server" does it now.)

Some of the numbers associated with this effort are mind-boggling. "Currently," she said, "we have over 58 million records in SearchPlus. Biosis will add another 15 million."

Many scientists like to check "cited authors" to determine how many times their papers have been listed as references by other writers. They also like to use the number of citations to determine which articles in their field are seminal and deserve their limited time and attention. RL is now managing more than 500 million citations.

A great deal of thought goes into just how databases should be handled to be most useful to the Laboratory audience. One of the major issues is that RL must serve not only users who know little about computer processes and just want to push a button and get an immediate answer, but also very sophisticated users who make maximum use of advanced searches. One of the most sophisticated audiences RL works with is its own Prototyping Team. Members of this team are "high-level library Ph.D.s who do a lot of work with digital architecture," she said.

Another RL team—the Human-Computer Interface Team—has been one of the key players in efforts toward SearchPlus usability, she said.

Asked about the people who worked most on the SearchPlus project, she mentioned the "developers on my team" plus "a group of crack librarians downstairs who were indispensable." These people know the content of databases and know what people use, she said.

"We had people who sat down and looked at the data itself … (asking) 'How do we want to arrange it?'" she said. Others looked at interfaces, considering issues as specific as where to put the navigation bar

(Please see LIBRARY, page 3.)

LIBRARY (Cont'd from p.2)

and how to present a list of indexes (names, titles, etc.). (A list of indexes can be a long list when there are several databases involved and not every index applies to every database.)

"It can get very complex," she said.

She listed 10 members of the development team who were especially useful in developing the application: Blake herself, Doug Chafe, Frances Knudson, Ming Yu, Beth Goldsmith, Mariella Di Giacomo, Mark Martinez, Nan Zou, Jeff Scott, and Jeremy Hussell—"in no significant order," she said.

Looking ahead, she commented that a lot of development on collaborating tools is coming. "In the near future, we'll try to expand the alerts" so that groups can set up ways to flag information for all of their members, she said. She also foresees "canned alerts," which might allow a user to say, for example, "'E-mail me when I'm cited.'"

Meanwhile, the library is providing a service whereby a user may ask for help and a customer-service outreach person will come to his worksite and give a demonstration. Last year, RL provided more than 8,000 visits to individual offices.

"We're looking for feedback on our products and how to make them more usable," she commented."

Asked about the global impact of informational databases and about worldwide consistency, she said, "The digital library is a very interesting field." Standards are developing, she said. There is no question that libraries all over the world are making progress. "The Web is the great equalizer," she said. "It's a force for uniformity in research approach."

(Editor's Note: Want to know more? Go to the STB web page, click on "Research Library" on the left, and check out what is listed under "More about Us."

You can also read the RL newsletter at http://lib-www.lanl.gov/libinfo/news/news.htm —or even subscribe.

To schedule your own private training session, call 7-5809 or e-mail library@lanl.gov.

Library tours are available on a drop-in basis every Wednesday at 1:00 p.m. or by appointment. Tours last approximately 30 minutes.)

People in the News

Many employees rushed out of Canyon School April 27, concerned and ready to lend support when they heard that **Angela Martinez' 12-year-old son, Antoine**, had been struck by a car.

Police and emergency vehicles crowded Central, and most of the people standing on the sidewalk couldn't really see what had happened.

It was every mother's nightmare, but fortunately, Martinez was able to report April 28—after a harrowing trip to the hospital—that her son had scrapes and scratches but was basically fine. She said Antoine had just gotten off LA Bus in front of Hilltop House and was crossing Central to come join his mom when a car tried to pass the parked bus and struck him.

Central is a very busy street. Please take special care when walking across the street; try to be an alert and considerate driver, respecting pedestrian rights and safety; and urge your family members to do the same things.

Stephen Schultz has accepted a new job with Laboratory Directed Research and Development (LDRD).

Schultz joined Science and Technology Base Programs (STB) in November 2002 as the STB webmeister, assigned to the program leader's office. He said that at LDRD, "I'll be in charge of maintaining and developing the Monte Carlo application—the software that's used to manage LDRD business, which includes submitting and reviewing proposals and administering projects."

Schultz commented, "I've enjoyed the variety of projects I've done while assigned to STB as a whole, and I'll certainly miss that. But, on the other hand, this is an opportunity to work on a bigger project. I'll be working with a developer from CCS (Computer and Computational Sciences Division) on rewriting the entire application using more modern programming approaches." For now at least, Schultz will stay in the same office—next door to Rick Alexander in the STB Education Program Office.

The team of Chris Brigman, Octavio Ramos, and Kathryn Ostic won an "Award of Excellence" in April from the International Society for Technical Communication (STC) competition in "technical art." **The award honored the design of "Critical Skills Development Program at LANL,"** which was printed for Science and Technology Base Programs in April 2002.

Aleksandr Stefaniak, a graduate student employee—and beryllium researcher of note.

EPO Shares News of a Graduate Student Employee's Success

(Editor's Note: Carole Rutten in the Education Program Office was delighted when one of the Laboratory's outstanding graduate-student employees sent her an e-mail to tell her that his first scientific paper had been published. "I was just so excited," she told STB News. "These are the successes we need to share throughout the Laboratory." Agreed. Here's the story….)

Aleksandr B. Stefaniak is the kind of outstanding student employee who makes Los Alamos National Laboratory proud.

Stefaniak—a graduate student in the Laboratory's Industrial Hygiene and Safety Group (HSR-5) who won the "Distinguished Student Performance Award" in 2003—is studying beryllium and its interaction with the human immune system. Spring 2004 has been a time of remarkable achievement in his life:

- He completed his dissertation for the Johns Hopkins School of Public Health. He will receive his Ph.D. in environmental health sciences in May.
- Drawing on his dissertation, he began working on four papers. The first of those papers was published in the May/June issue of the American Industrial Hygiene Association Journal (AIHAJ). Stefaniak is the lead author. Among his seven collaborators were his mentor at the Laboratory, Ronald Scripsick of HSR-5, and two other Laboratory employees—Eric J. Peterson of the Materials Science and Technology Division (MST) and Gregory A. Day, formerly of MST. His other collaborators were associated with Johns Hopkins, the National Institute for Occupational Safety and Health (NIOSH), Lovelace Respiratory Research Institute in Albuquerque, and Brush Wellman Inc. of Elmore, Ohio.
- The article has been selected to receive the David Swift Award for the best aerosol paper published in the AIHAJ this year. The award is given by the American Industrial Hygiene Association Aerosol Technology Committee.
- The paper will be recognized in Atlanta, Georgia, in May at the American industrial Hygiene Conference and Exposition, the largest conference of its kind for occupational health and safety professionals.
- His second article has been accepted for publication in the Journal of Environmental Monitoring. The article has already been posted on the journal's web site, selected as a "Hot Article" for the month of March, and highlighted on the Royal Society of Chemistry web page.
- A third article is under review by the Journal of Applied Toxicology, and a fourth is in preparation.
- Meanwhile, Stefaniak and his wife, Carina, an employee in the Laboratory's Human Resources Division, had their first child—a son, Evan—on March 16.

In April, Stefaniak was continuing his research at the Laboratory, preparing for the trip to Atlanta, moving toward a job at NIOSH, and adjusting to the delights and demands of having a child.

Stefaniak, originally from Buffalo, New York, earned a B.S. in industrial hygiene from Clarkson University in Potsdam, New York, and an M.S. in industrial hygiene from Johns Hopkins before beginning work on his doctorate.

He first came to work at the Laboratory in the summer of 1997. The Oak Ridge Institute of Science and Education (ORISE) sponsored him.

(Please see STEFANIAK, page 5.)

STEFANIAK (Cont'd from p.4)

ORISE, managed by a consortium of 85 doctorate-granting colleges and universities, seeks to identify talented students, provide them with support and research opportunities, and prepare them to be leaders in key fields that will be important in Department of Energy (DOE) science and technology facilities in the future.

Stefaniak had an opportunity to choose his location, and he chose Los Alamos. He went to work in ESH-5, which subsequently became HSR-5. His first mentor was Marv Tillery, now retired.

Subsequently, he completed his master's degree and started working in the (DOE) Former Workers' Medical Surveillance Program. This program, run by the Johns Hopkins School of Public Health, is researching the health impacts on former DOE employees of exposure to lead, asbestos, beryllium, radionuclides, and solvents. During the first half of Stefaniak's time in the program, he visited HSR-5 frequently in conjunction with his work. In the second half of the program, he spent time in the eastern states, researching the impact of styrene on employees at manufacturing facilities.

He enrolled as a doctoral student at Johns Hopkins and returned to the Laboratory in November 1999. Scripsick was now his mentor. "I've been working in the same program ever since," he said.

HSR's Technology Development, Evaluation, and Application (TDEA) program supports the beryllium exposure project on which Stefaniak worked. In addition, he submitted a proposal to a nationally competitive research grant program under the auspices of the National Institutes of Health. His proposal was accepted, and, as a result, NIOSH paid for most of his dissertation research expenses.

In his dissertation—"On the Influence of Particle Physicochemical Properties on Dissolution of Beryllium"—Stefaniak made use of an epidemiological study done at a plant that produced beryllium. He focused on the physical and chemical characteristics of materials that caused chronic beryllium disease and how dissolved beryllium reacted with the human immune system.

His AIHAJ article makes clear the importance of beryllium research, saying, "The continued occurrence of chronic beryllium disease (CBD) suggests the current occupational exposure limit of 2 micrograms of beryllium per cubic meter of air does not adequately protect workers."

He and his collaborators used a suite of analytical techniques to characterize aerodynamically size-fractionated beryllium particles and powders associated in epidemiological studies with higher prevalence of CBD. They took aerosol particles from the ventilation systems of production lines for powders of beryllium metal and beryllium oxide and from ingots of copper-beryllium alloy. They also collected end-product powders from the metal and oxide production lines. The resulting data suggested, he said, "that differences in particle chemical composition, size, number, and surface area may influence bioavailability of beryllium and contribute to risk of CBD."

Asked about his future, he said, "It looks like I'm going to NIOSH in the Division of Respiratory Disease Studies in Morgantown, West Virginia…. I'll still be able to work on beryllium, but I'll be able to branch out into other topics" including exposure to aerosols containing cobalt and exposures to the effects of wildland forest fires. He said he definitely plans to maintain contact with Scripsick, his mentor at the Laboratory. "We've got more ideas than we've got time," he said.

Goodbye, and All the Best....

The Education Program Office held a party April 29 for Joe Vigil, robotics expert extraordinaire, who is leaving STB. At about the same time, University Relations employees took their leader, Jim Porter, out for lunch to say goodbye.

Math & Science Academy Thanks Three Legislative Supporters

Laboratory Director G. Peter Nanos sponsored a special reception at the Research Park April 27 to honor three legislators "who so generously volunteered their time and effort in securing critical state funding for the Northern New Mexico Mathematics and Science Academy (MSA)."

Those honored at the ceremony were: Sen. Richard C. Martinez of District 5 (which includes parts of Los Alamos, Rio Arriba, and Sandoval Counties), Rep. Nick L. Salazar of District 40 (which includes parts of Mora, Rio Arriba, Santa Fe, San Miguel, and Taos Counties), and Rep. Jeannette O. Wallace of District 43 (which includes parts of Los Alamos, Sandoval, and Santa Fe Counties).

Each legislator was presented with a plaque that said that Los Alamos National Laboratory and the University of California "extend their sincere gratitude for your outstanding legislative achievements on behalf of the students and teachers of the Mathematics and Science Academy." Each one also received an Indian blanket as a gift of thanks.

Nanos was unable to attend the ceremony because he was in Washington, D.C., but William H. Press, deputy director for science and technology, attended the reception and spoke briefly, pointing out that the three legislators "are responsible for a $200,000 appropriation" for MSA.

Press noted that MSA is now in its fourth year. It is operating in the Mora, Chama, Española, and Pojoaque schools, and it now involves more than 50 teachers at nine sites in four districts, and more than 2,000 students. The appropriation that Martinez, Salazar, and Wallace guided through the Legislature will make it possible to expand into another school district, Press said.

Press added, "The program has had remarkable success, with increases in test scores for students in MSA during every year of the program. At one site, student scores increased significantly in all five testing areas as a result of MSA."

In addition to introducing the legislators, Press introduced the three MSA staff members who designed, developed, and implemented the program—Carol Brown, Cathy Berryhill, and Lorenzo Gonzales

Those who attended the reception included Kurt Steinhaus, former leader of the Science and Technology Base Programs (STB) Education Program Office (EPO) and now New Mexico's deputy secretary of education; Allen Hartford, leader of STB; Don Rej, incoming leader of STB; Min Park, leader of EPO; and many other Laboratory staff members, parents, students, and relatives.

Food was served, and those attending spent a pleasant 90 minutes chatting about MSA, education, and the needs of children. A large backdrop in one corner of the room—created by Rick Alexander in STB-EPO with the assistance of the MSA staff—featured detailed information about the program, its philosophy and approach, and its goals.

(MSA photos appear on page 7.)

Supercomputing Challenge Awards Draw Large Turnout

The Physics Auditorium was jammed April 27 for the 14th Annual New Mexico Adventures in Supercomputing Challenge Awards Ceremony.

The Challenge is important for Science and Technology Base Programs (STB) because it is part of the Critical Skills Development Program, which encourages the identification, education, and employment of outstanding students gaining proficiency in fields vital to the future of Los Alamos National Laboratory and other Department of Energy facilities.

The Challenge seeks to improve students' understanding and use of technology by developing their skills in scientific inquiry, modeling, computing, communications, and teamwork. Each team conducts a computational science project, using the Laboratory's high-performance computers. The program also provides training in the summer for teachers. The Laboratory has been the major sponsor of the Challenge since 1990.

The crowd at the awards ceremony was a happy gathering of students, teachers, staff members—and amateur and professional photographers. David Kratzer of the Computing, Communications, and Networking Division's High Performance Computing Systems Group (CCN-7), kept the program moving rapidly through a long list of presentations. In the few gaps that occurred, he posted winning numbers to give away small presents ranging from hats to flying disks.

A team from Eldorado High School in Albuquerque won first place with a project called "Atomistic Modeling of Biomolecular Interactions." The project involved a molecular dynamics simulation that could have applications in cancer treatment. The three members of the team—each one dressed in a suit and tie for the occasion—gave a brief, professional-level presentation on their project, taking turns at the microphone. Each of them received a $1,000 savings bond. Their teacher got a laptop computer.

Second place went to a multischool team with members from Eldorado, Manzano and PAPA Schools. Their entry was called "Who Said That?" It involved a system to identify the source of sound. Each member of the No. 2 team got a $500 savings bond.

But there were many awards, and dozens of team members got an opportunity to stand next to the podium, receive a plaque, and hear the audience applaud their efforts. As Kratzer told the students in his closing remarks, "The Challenge is a competition, an eight-month marathon…. Everyone who crosses the finish line is a winner."

Those who presented plaques came from a variety of businesses and organizations ranging from Cray to the Albuquerque Tribune, from HTML to the Society for Technical Communication.

One special moment came when the Challenge presented plaques to Rep. Ben Lujan and his chief of staff, Regis Pecos, for their efforts in getting an $80,000 appropriation for the Challenge through the Legislature. The audience gave them a standing ovation. Rep. Jeannette Wallace of Los Alamos, another strong supporter of the Challenge, was also in the audience.

Among those in the crowd were William H. Press, Laboratory deputy director for science and technology; Min Park, leader of STB's Education Program Office; and Sandra Landry, EPO's team leader for Critical Skills Development. Landry spoke later about what an uplifting experience it was to see an entire room filled with bright young people deeply involved in science and technology.

The importance that some schools give to the Challenge was, perhaps, best illustrated by the Shiprock schools—which got a Judges' Special Recognition Award. Shiprock, a small school system in western New Mexico, brought five teams to the competition.

(Challenge photos appear on page 8.)

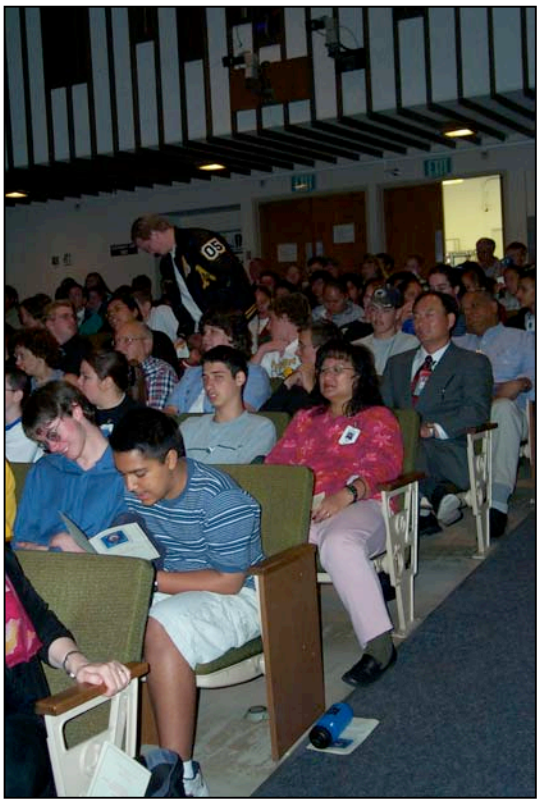
MSA Awards Ceremony Honors Martinez, Salazar, Wallace

Above left, Sen. Richard Martinez chats with Rep. Jeannette Wallace. Above right, Rep. Nick Salazar and Educational Program Office leader Min Park (accompanied by his son Jin Park) greet friends. Center left, Plaques and gifts await those honored. Above right, those enjoying the evening included incoming STB leader Don Rej (center), New Mexico Deputy Secretary of Education Kurt Steinhaus (center, behind Rej), and STB leader Allen Hartford (at center back). At left, Students from Chama, Sen. Martinez, and others enjoy the food. And at right, MSA teachers Carol Brown, Lorenzo Gonzales, and Cathy Berryhill pose for the camera.

Supercomputer Challenge Awards Draw Enthusiastic Crowd

'Everyone who crosses the finish line is a winner.'

Top right, a large crowd attended the Adventures in Supercomputing Awards April 27 at the Physics Auditorium. (That's Min Park, leader of the Education Program Office, at right near the back.) At left, David Kratzer of CCN-7 projects the number of a winner in the periodic drawing held during breaks in the ceremony. At left, second down, a young scientist from Alamogordo comes up to draw from the box of prizes. Directly below, the team from Eldorado won several awards—and then won first place with the project "Atomistic Modeling of Biomolecular Interactions." At right, second down, this team won second place. At bottom, left, officials in the front row included, left to right, Rep. Ben Lujan; Lujan's chief of staff Regis Pecos; William H. Press, the Laboratory's deputy director for science and technology; Bill Heimbach from CER-1; and Rep. Jeannette Wallace of Los Alamos. At bottom right, Judy Prono of IM-1 presents the Society for Technical Communication prize for best-written report to Steve Schum, the teacher representing Robert Cordwell, a student at the Career Enrichment Center in Albuquerque who did a computerized study of driver behavior in NASCAR races.



Photos by Charmian Schaller